IMPROVEMENTS IN AND RELATING TO ROOFING OR SHEATHING

TECHNICAL FIELD OF THE INVENTION

[0001] This invention relates to an exterior sheathing element and a method of applying exterior sheathing to a structure. More particularly, the invention relates to a sheet metal sheathing element useful for roofing.

BACKGROUND OF THE INVENTION

[0002] A variety of exterior sheathing elements including those formed from sheet metal are known. Traditionally with exterior sheathing, particularly roofing, the word "tile" is used to indicate a single tile such as a concrete tile. With the development of sheet metal sheathing, it has become well established to manufacture elements that visually replicate the designs of such traditional tiles. Because these sheet metal tiles are substantially lighter than their concrete counterparts, they are normally manufactured as multiple units, for example, so as to replicate say three of four traditional tiles. This capability is one of the advantages these tiles have over the traditional "single" tile. This invention is primarily concerned with a multiple sheet metal tile, and herein the term "tile" is used accordingly. However, the nature of the invention does lend itself for manufacture and use as a single tile element and the term is to be considered as being applicable to either form of tile.

SUMMARY OF THE INVENTION

[0003] A first object of this invention is to provide a sheet metal sheathing element particularly useful as a roofing tile that can be manufactured utilising thinner sheet metal than typically used with sheet metal tiles. A second object is to provide a sheet metal tile that replicates a traditional wooden shingle "tile" particularly in a multiple configuration thereof as discussed above relative to concrete tiles. A further object of this invention is to

provide such a sheathing element adapted to be individually fixed to a supporting structure and subsequently conjoined and fixed to further tiles both laterally and longitudinally with respect to the first tile. The steps can be repeated to cover a desired area of a supporting structure and thus a further object is to provide a method of affixing sheathing tile to a structure. Yet a further object is to provide the public with a further choice in sheathing elements and, in particular, a sheathing element suitable for mounting by relatively unskilled people.

[0004] According to a first aspect of this invention there is provided an exterior sheathing element having a first edge portion forming an innerface channel on what, in situ, will be an innerface of the element, and having a second and opposite edge portion forming an outerface channel on what, in situ, will be an outerface of the element. A part of that second edge portion, being a part set-back from at least one side of the tile, has a mounting tab projecting clear of the second edge portion in a substantially co-planar relationship to a main body of the element. This structure enables an overlapping section of the second end portion at one side of a first sheathing element which has no mounting tab to be overlapped with a side of a second element so that their corresponding folded edge portions engaged. A first folded edge portion of a third sheathing element can then be engaged over and about the second folded edge portion of at least one of the first and second sheathing elements.

[0005] According to a second aspect of this invention there is provided a sheet metal exterior sheathing element configured to replicate at least one wooden shingle. The element includes a substantially planar body save for strengthening indentations including, adjacent to one side, a series of longitudinally extending ribs, the ribs being on that side of a tile intended, in use, to be disposed on the underside when overlapped with a side of a second element to also act as weathering indentations. The element has a first edge portion turned back on itself to form a channel on what, in situ, will be an innerface of the element, and has a second and opposite edge portion also turned back on itself to form a channel on what, in situ, will be an outerface of the element. A part of that second edge portion is set-back from

at least one side thereof and has a return fold to extend back on itself and project clear of and substantially co-planer to the body of the element to form a mounting tab. The structure enables a first and second sheathing element to be disposed with their sides overlapping and their corresponding folded edge portions engaged, so that the first folded edge of the lowermost tile is located within the channel of the first folded edge of the uppermost element and so that the mounting tab free part of the second folded edge of the uppermost element is located within the channel of the lowermost element, and so that a first folded edge portion of a third tile can be engaged over and about the second folded edge portion of at least one of the first and second tiles.

[0006] According to a third aspect of this invention there is provided an exterior sheathing element having a substantially planar body and having a first edge portion folded over to overlay, in adjacent spaced relationship to thereby form a first transversely disposed channel, what in situ will be a lower section of an innerface of the element. The element has a second edge portion opposite the first edge portion, folded over to overlay, in adjacent spaced relationship to thereby form a second transversely disposed channel, what in situ will be an upper section of an outerface of the element. At least a part of the second edge portion is further folded back on and over itself to form a mounting tab projecting clear of the second edge portion in a substantially co-planar relationship to the plane of the body of the element. The structure of the element enables a first side portion of a first sheathing element to be overlapped with a second and opposite side portion of a second element without engagement except for the overlapping sections of the first and second folded edge portions. Engagement of those sections is by positioning the side section of the first folded edge portion of the underlay element in the channel formed by the corresponding section of the overlay element, and by positioning the side section of the second folded section of the overlay element in the channel formed by the corresponding section of the underlay element. A first folded edge portion of a third sheathing element is positioned so as to be engaged over the overlapping sections and adjacent sections of the second folded edge portions of the first and second

sheathing elements with those second folded edge sections being located in the channel formed by the first folded edge portion of the third element.

[0007] According to a fourth aspect of this invention there is provided a method of exterior sheathing a structure with a plurality of sheathing elements as described in any one of the three immediately preceding paragraphs. This method comprises substantially of repeating the steps of positioning a first sheathing element on a sheathing element support of the structure, positioning a second sheathing element with a side section thereof in an overlapping relationship with a section side of the first element and in so doing ensuring their corresponding folded edge portions engage one within the other by the side section of the first folded edge portion of the underlay element being located in the channel formed by the corresponding section of the overlay element. The side section of the second folded section of the overlay element is located in the channel formed by the corresponding section of the underlay element, and a first folded edge portion of a third sheathing element is positioned in engagement over the overlapping sections and adjacent sections of the second folded edge portions of the first and second sheathing elements with those second folded edge sections being located in the channel formed by the first folded edge portion of the third element. Throughout the method, the mounting is done by using the mounting tabs to affix the sheathing elements to the support.

BRIEF DESCRIPTION OF DRAWINGS

[0008] Fig. 1 is an upperface or obverse view of two sheathing elements being arranged next to one another in readiness for being laterally overlapped and engaged with one another as depicted in Figure 2;

[0009] Fig. 3 depicts a third sheathing element adjacent the two laterally overlapped elements depicted in Figure 2, the third element being arranged so as to be joined to the first two elements in a position depicted schematically by broken-line 3;

[0010] Fig. 4 is a partly schematic side view essentially in the direction of arrow A on Figure 3 and with the elements engaged with one another and mounted in situ onto a support extending adjacently therebeneath for substantially the complete span of the sheathing; and

[0011] Fig. 5 is a similar view to Figure 4 depicting a variation of the sheathing element mounted to support rafters disposed in a spaced apart manner beneath the sheathing.

DETAILED DESCRIPTION OF THE INVENTION

[0012] A sheathing element 1 is preferably manufactured from sheet metal in a known manner such as by pressing, roll forming and/or folding. Preferably, element 1 is designed as a multiple tile as discussed above and, in particular, to replicate a plurality of wooden shingles arranged in a side overlapping side relationship as in situ. While the tile of this invention can be manufactured from sheet metal as typically used for sheet metal sheathing tiles; the design lends itself suitable for manufacture using thinner sheet metal. This in turn enables the tile to economically replicate wooden shingles. Preferably, sheet metal in the region of 0.27mm gauge is used, in situ, this necessitating a support extending completely therebeneath. Typically such a support is, as depicted in Figure 4, plywood or similar sheets 2 being mounted on rafters 16 or similar elements to completely cover an area. Because of their light weight, their design and their preferred utilisation with such a support, the tile of this invention is suitable for mounting by relatively unskilled people.

[0013] Preferably, sheathing element 1 is pressed into a thin or substantially single plane configuration having on overall thickness, including inter-engaging channels 7 and 9 as described below, similar to that of atypical wooden shingle. Indentations indicated by various longitudinally extending lines on the drawings are preferably provided to strengthen the tile 1 and provide the desired visual wooden shingle replication. These indentations are not pronounced, and in the preferred form the tile 1 has the exterior face thereof coated, in

a known manner, with stone chips or similar (not shown for the sake of clarity) to enhance this replication.

[0014] The indentations include weather ingress inhibiting ribs 5, preferably extending substantially parallel to the slides (i.e., transverse with respect to the main body) in a corrugated manner and preferably being more pronounced than most of the remainder of the indentations. The ribs 5 are disposed along at least one side zone 4 of the tile 1, and the side zone is that side that will be lowermost when overlapped (as depicted by Figs. 1 and 2) with another tile 1. In the drawings, both sides of a tile 1 are shown with ribs but they are not necessary on that side of a tile 1 that will be uppermost in situ.

[0015] A first edge portion 6 is formed back on itself such as by folding to form a channel 7 on what, in situ, will be an innerface of the tile 1. On a second and longitudinally opposite edge portion 8, a further channel 9 is formed on what, in situ, will be an outerface of the tile 1. (While the tile 1 is preferably wider than it is long, the terms "side" and "longitudinal" are used in the manner chosen to assist clarity.) Channel 9 is also preferably formed by folding the second edge portion 8, and a mounting tab 10 is also formed so as to project from that outer edge portion 8.

[0016] Mounting tab 10 extends along the second edge portion 8 but preferably terminates short of one side of the tile 1 to leave a mounting tab free section (i.e., overlapping section of the second edge portion 8) 11. The tab free section 11 is preferably disposed at the side of the tile opposite the side with the ribs 5 or, in other words, that side of a tile 1 that will be uppermost (i.e., upperside) when in a side overlapping relationship with another tile. It will be understood by those skilled in the art and the following description that mounting tab 10 may also terminate short of the other side of the element and need not be continuous.

[0017] Mounting tab 10 is preferably formed by providing a return fold on the mounting tab forming part of second edge portion 8, the mounting tab 10 extending back about channel 9 and then outwardly substantially co-planar with the body of the tile 1. The

distal side of edge portion 8 with respect to mounting tab free part 11 and the associated engaging section of first edge portion 6 may be stepped, as indicated as stepped portion 17 on tile la in Figure 1, to assist the side overlap engagement, and continuity of line, of one tile with another. For similar reasons, at the stepped portion 17, channel 9 may be marginally "opened" and at the tab free section 11 marginally "closed".

[0018] The construction and arrangement of the tile 1 enables a plurality of tiles 1 to be laterally overlapped with one another as depicted in Fig. 2. Referring in particular to Fig. 1, the overlap is achieved by arranging a first tile 1a next to a second tile 1b. This is indicated by double headed arrow 13, and the overlap allows their respective edge portions 6 and 8 to engage one another. More particularly, the first edge portion 6 of tile 1b locates within channel 7 of first edge portion 6 of tile la, and the tab free section 11 of edge portion 8 of tile 1a locates in channel 9 of second edge portion 8 of tile 1b.

[0019] Referring in particular to Fig. 3, a third tile lc can then be mounted, as indicated by the double headed arrow 15, on tiles 1a and/or 1b. Preferably, the mounting is achieved so that the channel 7 of tile lc engages over and about the overlapping folded second edge portions 8 of the tiles la and 1b and so as to extend to either side of that overlap. This relationship of three such tiles 1 enhances the weathering capabilities of the junction between the tiles 1. For clarity, this engagement is depicted in a side view schematically in Figs. 4 and 5, the engagement being in the nature of a close nesting or clipping together.

[0020] A preferred method of in situ mounting is to connect tiles 1 in the sequence described above. In so doing, the tiles are rested on backing support sheet 2 and fixed thereto by fasteners such as staples 12 inserted through the mounting tabs 10 into the sheet 2. These steps are substantially repeated to cover the whole of a required area. In so doing, the mounting tabs 10 are hidden from view and a continuous sheathing finish is achieved.

[0021] Referring in particular to Fig. 5 a variation of the sheathing element 1 is depicted. This sheathing element 1d is preferably manufactured from thicker sheet metal in the region of 0.5mm gauge sheet metal. Mounting tab 10 incorporates a longitudinally

extending support batten forming a support channel which is used to affix the sheathing elements 1d directly to spaced apart rafters 16.